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## DEPARTMENT OF NATURAL RESOURCES DIVISION OF WILDLIFE RESOURCES

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Orig - Mine file

cc - W. Hedberg

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DIVISION OF  
OIL, GAS & MINING

February 15, 1990

Lowell Braxton, Administrator  
Natural Resources Department  
Utah Division of Oil, Gas & Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Mr. Braxton:

Thank you for the opportunity to comment on the proposed closure of the Hecla Escalante Unit's Tailing Facility near Enterprise, Utah. I have consulted with several of our Department's habitat and plant specialists for recommendations on this project. Some of their specific comments are attached for your review. In summary, we would like to make the following recommendations:

### 1. Irrigation

Irrigation should not be used often to establish vegetative growth. It should be used sparingly, if at all. One or two light turns for establishment and no more than two heavy turns throughout the summer. Heavy irrigation will move water through the top soil, rocks, and into the subsoil, which will encourage deeper root penetration resulting in greater chance for survival following removal of irrigation. See comments in Mr. Richard Steven's letter for details on this.

### 2. Fertilization

This should not be done. Fertilization requires additional water and if it does result in a positive effect, the plants may establish because of the fertilizer. Once fertilization is discontinued, they will most likely not survive.

### 3. Top soil

We feel that four inches of top soil over six inches of waste rock is not an adequate substrate for plant persistence and maintenance at this site. We would prefer a minimum of one foot of top soil over two feet of waste rock. Following sloping, the complete area should be ripped 2-4



feet deep to allow mix of the topsoil and rock, break up compacted soil catchment basins, increase water infiltration and water holding capacity, improve rooting and create a proper environment for germination, establishment and reproduction of plant species.

I have been told that the numerous potato growers in the area often have piles of "waste" top soil that might be secured for little or nothing to be used for this program. We suggest contacting some of the local growers.

#### 4. Plant species

We do not feel the seed mixture suggested by the BLM will provide adequate cover for this site. They suggest mostly grass species with little consideration for forbs and shrubs. Also, the Indian ricegrass suggested in their mixture needs to be planted 2-3 inches deep; whereas, most of the other plants should be seeded 1/4 inch deep. How will this be accomplished?

Grasses and forbs, and a few shrubs can be directly seeded with a rangeland drill. See Mr. Steven's letter for suggested application and species mixture. Shrubs will need to be transplanted. Doug Messerly, DWR Conservation Officer, has informed me that local sportsman groups could be persuaded to help accomplish this free of charge. The DWR would be willing to coordinate this effort through this office if desired.

We suggest a plant mixture that includes grasses, forbs and shrubs. Some of these will need to be established by transplanting and some through seeding (see copy of Richard Steven's letter). All seeding should be done in November and December and all transplanting should occur just following snow melt and prior to the early spring snow and rain storms. Transplanting would best be done the spring following direct seeding.

Transplanted shrubs should be at 435 stems/acre, or one shrub for every ten feet. To account for mortality, one shrub every five feet would be best. For information in securing transplant species and seed, please feel free to contact Mr. John Fairchild at our Salt Lake City office (Phone 533-9333).

#### 5. Fencing

The current fence needs to be maintained for at least 3-5 years to allow for the establishment of plant species, particularly forbs and shrubs. Once the fence is removed, care should be taken to ensure the area is not damaged by livestock grazing, since the area will probably have better quality and quantity forage than adjoining areas. After the chainlink fence is removed, the area will probably need some type of livestock fencing to keep grazing under control.



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Mr. Lowell Braxton  
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6. Tailings Neutralization and Contouring

We agree with the BLM's comments on this subject in their letter dated October 12, 1989. Tailings contouring should be kept as level as possible in order to provide proper runoff, maintain erosion and provide adequate moisture infiltration into the top soil.

The proposed "wash" may not be adequate to penetrate deep enough to leach out toxins that could be uptaken by plants. Buffering or neutralizing to the five foot depth using the same strategy as the wash would be better by neutralizing the leachate material rather than concentrating it at the five foot depth.

We also agree that it is desirable that the wasterock fill contain 40 to 50 percent fines and less than 10 percent rock fragments larger than 10 inches. This would allow the fines to fill the pore spaces and also provide some water holding capacity necessary for plant root development. This could be particularly helpful once the area is ripped 2-4 feet deep to allow a mix of topsoil and rock, and break up compaction before seeding and planting.

We are greatly concerned with the proposed timing for initiation of the "tailing wash cycle." Due to the past problems with migratory bird mortalities, we urge you to consider avoiding expanding the flooded surface area of the impoundment from at least February through April and September through November. In this way, the major fall and spring migratory periods for waterfowl and shorebirds can be avoided. Once the cyanide in the recycled pond solutions reaches non-toxic levels, flooding may be possible during these periods.

Thank you again for the opportunity to comment on this project. Should you need additional assistance or information, please feel free to contact this office.

Sincerely,

*Bruce L. Bonebrake*

Bruce L. Bonebrake  
Habitat Protection

*F. Clair Jensen/UT*

F. Clair Jensen  
Regional Supervisor

cc: Ralph Miles  
Doug Messerly  
Richard Stevens  
John Fairchild  
Floyd Coles  
Mike Schwinn